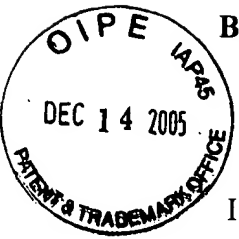


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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES



Art Unit: 2644
Examiner: Mr. Andrew C. Flanders

In re PATENT APPLICATION of:

Applicant : Kenjiro MATOBE)
Serial No. : 09/810,445)
Filed : March 19, 2001)
For : REPRODUCING)
APPARATUS)
Attorney : OKI 273)
Ref. :)

APPEAL BRIEF

December 14, 2005

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450
Mail Stop: Appeal Brief-Patents

Sir:

INTRODUCTION

This is an Appeal to the Board of Patent Appeals and Interferences from the decision, in the Office Action June 14, 2005, finally rejecting all of the claims. A Petition for a one month Extension of Time was filed on September 20, 2005, and a Notice of Appeal was filed on October 14, 2005.

Accordingly, the present Appeal Brief is timely. 12/15/2005 JADD01 00000098 09810445

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(i) REAL PARTY IN INTEREST

The real party in interest in this appeal is the assignee, Oki Electric Industry Co., Ltd.

(ii) RELATED APPEALS AND INTERFERENCES

To the best of the knowledge and belief of the undersigned attorney, there are no prior or pending appeals, interferences, or judicial proceedings which may be related to, directly effect or be directly effected by, or have a bearing on the Board's decision in the present appeal.

(iii) STATUS OF CLAIMS

Claims 1, 3-6, and 8-16 are pending in this application, and stand finally rejected. Claims 2 and 7 have been cancelled. No claims have been allowed.

(iv) STATUS OF AMENDMENTS

An Amendment After Final Rejection was filed on August 23, 2005. An Advisory Action dated September 15, 2005 continued to finally reject the claims, observed that two of the claim amendments were improper and required correction, and advised that the Amendment After Final Rejection would not be entered. A Corrected Amendment After Final Rejection was

filed on September 20, 2005, and an Advisory Action dated October 18, 2005 reported that it would be entered for purposes of appeal.

(v) SUMMARY OF CLAIMED SUBJECT MATTER

The present application is directed to an audio reproducing apparatus. An input terminal shown in Figure 1 of the application's drawings receives data blocks of a digitized audio signal. A sequence of five such data blocks is shown in Figure 2, with each of these data blocks having 64 units of data D1-D64.

Referring next to Figures 1 and 3, a thinning out unit 2 receives the data blocks from the input terminals and thins them out by removing every other data block. A conversion unit 3 then joins the remaining data blocks in a manner that avoids abrupt transitions. The application teaches the last data of a given data block and two or more leading data of the following data block can be smoothly concatenated by increasing or decreasing the amplitude of the two or more leading data on the basis of the last data of a given data block and the first data of the following data block (page 5, lines 1-7, for example).

(vi) GROUND OF REJECTION TO BE REVIEWED ON APPEAL

Claims 1-4, 6-9, 11, 12, and 14 stand rejected for anticipation by U.S. patent 4,757,540 to Davis.

Claims 5 and 10 stand rejected for obviousness on the basis of Davis in view of U.S. patent 5,870,397 to Chauffour. Also, claims 13, 15, and 16 stand rejected for obviousness on the basis of Davis. However, the rejection of these claims for obviousness will not be separately argued below, apart from their dependence from allowable independent claims.

(vii) ARGUMENT

The Davis reference discloses a system for splicing audio signals together. In Figure 2 of the reference (which is the same Figure that is reproduced on the cover page of the patent), an edit point A is selected to mark the end of one audio segment and an edit point B is selected to mark the approximate beginning of another audio segment. A correlation window 26 is established after the edit point A to show how the waveform in the first segment would have continued after the edit point A. Another correlation window, 28, is established at the edit point B of the second segment. The location of this second correlation window is varied, as shown at 30 and 32, and a best fit with the waveform in correlation window 26 is found. The segments are then spliced together.

Independent claim 1 recites “a conversion unit for **varying the amplitude of either a sequence of units of data including the last unit of data of a data block immediately preceding a thinned data block or a sequence of units of data including the first unit of data of a data block**

immediately following the thinned data block, so that the last unit of data of the immediately preceding data block will be concatenated with the first unit of data of the immediately following data block along a smooth amplitude-varying curve" (emphasis supplied). In contrast, an ordinarily skilled person would understand that the different correlation windows 28, 30 and 32, at the approximate start of Davis' second audio segment basically represent possible changes in the start position of Davis' second segment. That is, the start point B shown in Davis' Figure 2a is shifted so that the actual start of the waveform in Davis' second segment will blend with the waveform at the end of the first segment. Davis does not vary the amplitude of the audio signal at the end of his first segment or at the beginning of his second segment. Instead, Davis adjusts where his second segment is to begin. Nothing in the reference would have led an ordinarily skilled person who wanted to improve Davis' scheme in some way to vary the amplitude as recited in claim 1.

In the Advisory Actions, the Examiner has taken the position that:

... Applicant fails to acknowledge that Davis, by moving the window, the units of data within the window are effectively increased or decreased. For example, if I have a digital signal with the values 1-2-3-4-5-6 and I have a window that has the ability to contain 3 samples, as I move the window through the sequence it will first be 1-2-3 then will be 2-3-4, then 3-4-5 and so on. The first unit of data in the window is 1, then 2, then 3, respectively. As such, as the window is moved, the individual units of data within the window are varied.

This statement would seem to imply that one of the “data blocks” specified in claim 1 is the data within the movable window at the beginning of Davis’ second segment. It is respectfully submitted, though, that such an interpretation is inconsistent with claim 1. Claim 1 provides that audio digital data includes “a sequence of data blocks each of which consist of a predetermined number of units of data,” and that a thinning-out unit thins out “part of the audio digital data on a data block basis.” Thus, there are a predetermined number of units of data in a data block that is thinned out. Since Davis’ window is movable, though, the number of units of data in the segment that Davis discards is variable, not predetermined.

Independent claim 6 recites “a conversion unit for varying the amplitude ...”, and independent claim 11 also specifies a conversion unit that varies the amplitude. For reasons similar to those discussed above with respect to claim 1, it is respectfully submitted that Davis neither discloses nor suggests such conversion units.

Claim 1 also provides that “the amplitude-varying curve is calculated to a simply increasing or decreasing function.” Independent claim 6 has a similar limitation. Davis does not change his sequence of data by calculation in order to achieve a smooth concatenation between data blocks. Instead, Davis achieves a smooth concatenation by adjusting the point on one waveform where it is to be joined to another waveform.

In the Advisory Action, the Examiner refers to a dictionary definition of calculate as “to make an estimate of; evaluate.” The Examiner then takes the position that Davis evaluates, and thus calculates, in accordance with claim 1. However, it is respectfully submitted that an ordinarily skilled person who had read the present application would not interpret “calculated” in claim 1 in a non-mathematical way.

Independent claim 11 recites that audio digital data includes “a first sequence of data blocks each of which consists of a predetermined number of units of data, the predetermined number being the same for all of the data blocks in the first sequence.” Claim 11 then recites a thinning-out unit that removes data blocks from the first sequence to form a second sequence of data blocks. As a result of the thinning in claim 11, the data blocks in the second sequence must necessarily have the same number of units of data, because the second sequence represents what remain of the first sequence after some of the data blocks are removed from the first sequence.

In contrast, even if Davis’ first and second audio segments are the same size to start with, they would not remain the same size (in general) after Davis’ adjustment of the starting point for his second audio segment. And, of course, the number of units of data in Davis’ movable window is not the same as the number of units of data in the first and second audio segments that Davis splices together.

In the Advisory Action, the Examiner appears to take the position that a “data block” can be an individual sample, and that the number of “units of data” in such a data block means the number of bits in each sample. It is respectfully submitted, though, that such an interpretation is not only contrary to how an ordinarily skilled person who had read the present application would interpret the language of claim 11, it would also imply that the method disclosed by Davis is considerably different from what is recited in claim 11. The reason is that after Davis uses his movable window to help determine which samples of his second segment are to remain; he does not vary the amplitude of the bits in these remaining samples.

Since the remaining claims on appeal depend from the independent claims discussed above and recite additional limitations to further define the invention, they are patentable along with their independent claims. Nevertheless, several dependent claims will now be briefly addressed.

Claim 3 depends from claim 1 and recites that “the simply increasing or decreasing function is determined on the basis of the difference between the amplitude of the last unit of data of the data block immediately preceding the thinned data block and the amplitude of the first unit of data of the data block immediately following the thinned data block, the amplitude of the units of data of which the amplitude is to be varied in the immediately following data block, position information of the units of data,

and the number of data in the sequence of units of data.” Claim 8 is similar, but depends from claim 6 rather than claim 1. It is respectfully submitted that Davis neither discloses nor suggests calculating an amplitude-varying curve in accordance with such a function.

Claim 12 depends from claim 11 and recites that “the conversion unit comprises means for varying the amplitude of the units of data adjacent the boundaries in accordance with a monotonic increasing or monotonic decreasing function.” An ordinarily skilled person would have no trouble understanding claim 12 if the “units of data” in claim 11 are interpreted as digitized samples, but would probably have considerable difficulty if the “units of data” are interpreted as bits. What would it mean to “[vary] the amplitude of the units of data [bits] adjacent the boundaries in accordance with a monotonic increasing or a monotonic decreasing function”?

Claim 14 depends from claim 11, and recites that “the units of data are uncompressed audio data.” Claim 15 also depends from claim 11, and recites that the units of data are compressed audio data. Here again, claims 14 and 15 indicate that it is improper to interpret the “units of data” of claim 11 as bits. What would be a compressed audio bit, or an uncompressed one?

CONCLUSION

For the foregoing reasons, it is respectfully submitted that the Examiner's rejection of claims 1, 3-6, and 8-16 should be reversed.

The Appeal Brief fee of \$500 is included in a remittance that is being submitted concurrently. Should this remittance be accidentally missing or insufficient, however, any fees that may be needed can be charged to our Deposit Account number 18-0002.

Respectfully submitted,



Allen Wood
(Reg. No. 28,134)
RABIN & BERDO, P.C.
Customer No. 23995
1101 14th Street, N.W.
Suite 500
Washington, D.C. 20005
Telephone: (202) 478-8976
Telefax: (202) 408-0924

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(viii) CLAIMS APPENDIX

The claims involved in this appeal are presented below:

1. A reproducing apparatus comprising:

an input terminal for inputting audio digital data including a sequence of data blocks each of which consists of a predetermined number of units of data;

a thinning-out unit for thinning out part of the audio digital data on a data block basis; and

a conversion unit for varying the amplitude of either a sequence of units of data including the last unit of data of a data block immediately preceding a thinned data block or a sequence of units of data including the first unit of data of a data block immediately following the thinned data block, so that the last unit of data of the immediately preceding data block will be concatenated with the first unit of data of the immediately following data block along a smooth amplitude-varying curve,

wherein the amplitude-varying curve is calculated to a simply increasing or decreasing function.

Claim 2 (cancelled).

3. A reproducing apparatus according to claim 1, wherein the simply increasing or decreasing function is determined on the basis of the difference between the amplitude of the last unit of data of the data block immediately preceding the thinned data block and the amplitude of the first unit of data of the data block immediately following the thinned data block, the amplitude of the units of data of which the amplitude is to be varied in the immediately following data block, position information of the units of data, and the number of data in the sequence of units of data.

4. A reproducing apparatus according to claim 1, wherein said conversion unit integrates the sequence of units of data the amplitude of which has been varied.

5. A reproducing apparatus according to claim 1, wherein the units of data of each data block are compressed audio data, each data block further includes header information from which the first unit of data of the data block is obtained, and units of data following the first unit of data are decompressed on the basis of the immediately preceding unit of data of the data block.

6. A reproducing apparatus comprising:

an input terminal for inputting audio digital data including a sequence of data blocks each of which consists of a predetermined number of units of data;

a thinning-out unit for thinning out part of the audio digital data on a data block basis;

a conversion unit for varying the amplitude of either a sequence of units of data including the last unit of data of a data block immediately preceding a thinned data block or a sequence of units of data including the first unit of data of a data block immediately following the thinned data block, so that the last unit of data of the immediately preceding data block will be concatenated with the first unit of data of the immediately following data block along a smooth amplitude-varying curve; and

a reproducing unit for reproducing both the units of data converted by said conversion unit and units of data not converted by said conversion unit,

wherein the amplitude-varying curve is calculated according to a simply increasing or decreasing function.

Claim 7 (cancelled).

8. A reproducing apparatus according to claim 6, wherein the simply increasing or decreasing function is determined on the basis of the difference between the amplitude of the last unit of data of the data block immediately preceding the thinned data block and the amplitude of the first unit of data of the data block immediately following the thinned data block, the amplitude of the units of data of which the amplitude is to be varied in the immediately following data block, position information of the sequence of units of data, and the number of units of data in the sequence of units of data.

9. A reproducing apparatus according to claim 6, wherein said conversion unit integrates the sequence of units of data the amplitude of which has been varied.

10. A reproducing apparatus according to claim 6, wherein the units of data of each data block are compressed audio data, each data block further includes header information from which the first unit of data of the data block is obtained, and units of data following the first unit of data are decompressed on the basis of the immediately preceding unit of data of the data block.

11. A reproducing apparatus comprising:

an input terminal for inputting audio digital data including a first sequence of data blocks each of which consists of a predetermined number of units of data, the predetermined number being the same for all of the data blocks in the first sequence;

a thinning-out unit for removing data blocks from the first sequence to form a second sequence of data blocks, the data blocks in the second sequence having been separated in the first sequence by the removed data blocks; and

a conversion unit for varying the amplitude of units of data adjacent boundaries between the data blocks of the second sequence so as to smooth transitions between the data blocks of the second sequence.

12. A reproducing apparatus according to claim 11, wherein the conversion unit comprises means for varying the amplitude of the units of data adjacent the boundaries in accordance with a monotonic increasing or monotonic decreasing function.

13. A reproducing apparatus according to claim 12, wherein the function is a linear function.

14. A reproducing apparatus according to claim 11, wherein the units of data are uncompressed audio data.

15. A reproducing apparatus according to claim 11, wherein the units of data are compressed audio data.

16. A reproducing apparatus according to claim 11, wherein the first sequence of data blocks has about twice the number of data blocks as the second sequence, the second sequence being formed by removing every other data block from the first sequence.

(ix) EVIDENCE APPENDIX

No new evidence is being submitted with this Brief.

(x) RELATED PROCEEDINGS APPENDIX

In view of section (ii) of this Brief, no copies of decisions are appended.